Improvements for EBA (Environmental Benefits Analysis)

"White Paper" Mar 2001

TRACK 1 – Improve Current Procedure

- Analytical Protocol for NED/NER analysis
- Link evaluation to broader range of ecological models

TRACK 2 – Next Generation

- Develop NER/EQ account to reflect "goods and services" approach
- Expand ecological models to include process (simulation) models
- Initiate interagency dialogue

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Near Term Protocols

	Small Studies/Projects	Large Studies/Projects
Single Purpose	*e.g.,* CAP 1135, 206,204	*e.g.,* 1103, Ohio River, CWPPRA
	•Ecological analytical methods (e.g., HEP, IBI) •Economic framework •Cost allocation •Cost sharing	•Ecological analytical methods (e.g., IBI ,HEP, HGM) •Economic framework •Cost allocation •Cost sharing
Multipurpose	*e.g.,* Challenge 21 (Sec 212)	Everglades, Louisiana 2050, Lake Ontario/St Lawrence
	•Ecological analytical methods (e.g., HGH, HEP) •Economic framework •Cost allocation •Cost sharing	•Ecological analytical methods (e.g., IBI ,HEP, HGM) •Economic framework •Cost allocation •Cost sharing

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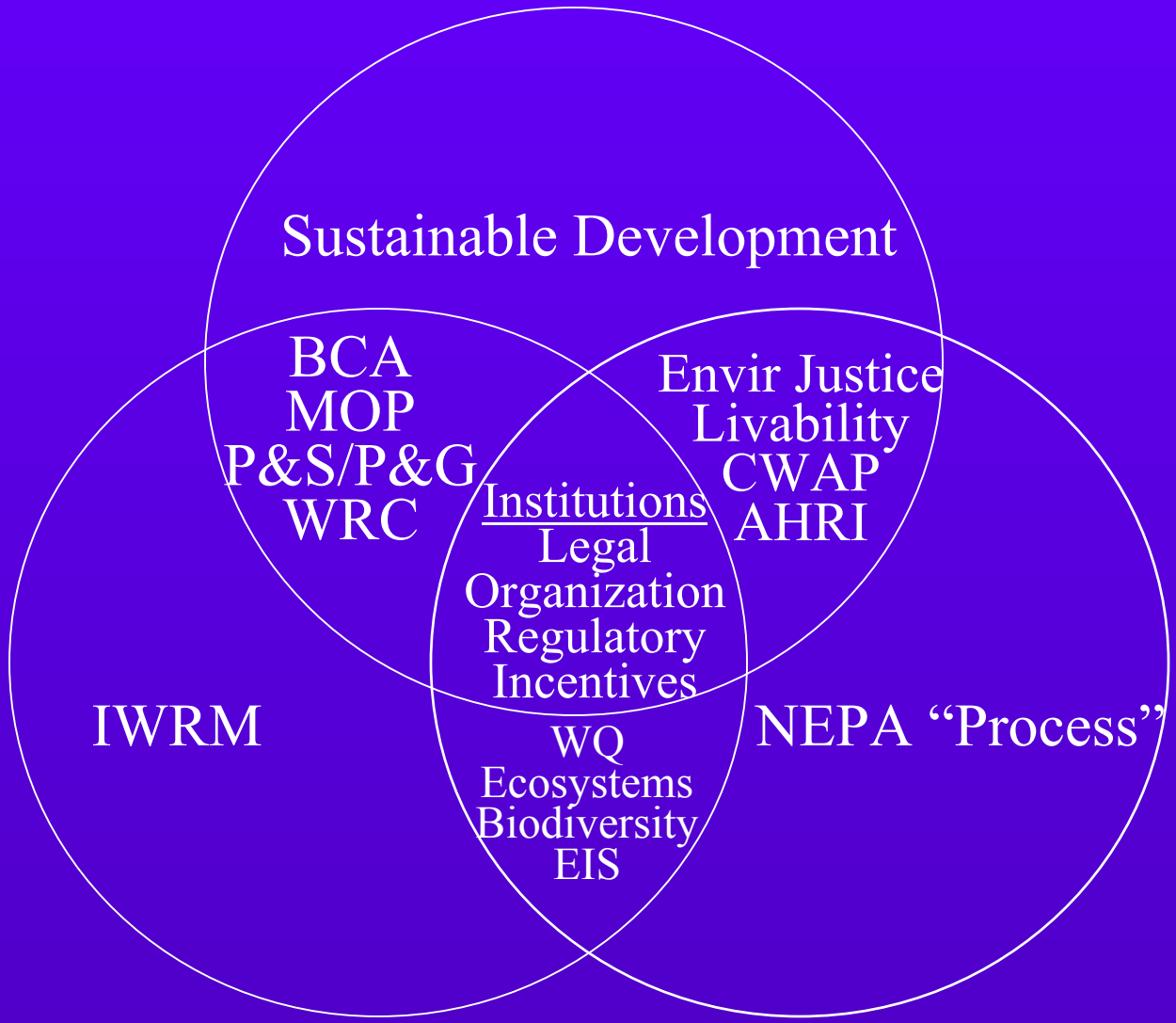
"Next Generation"

- EBA Report
- Develop NER/EQ Accounting Framework for "environmental goods and services"
- Improve Ecological evaluation methods, especially process simulation models (for larger projects)
- Corps Economic & Environmental Wkshop
- Interagency Workshops

Precursors to EBA

- Policy Study: “New Directions for Corps Environmental Activities” (1993)
- Policy Study: “Incremental Cost Analysis” (1995)
- Policy Study: “Civil Works Environmental Action Plan” (1995)
- Policy Study: “Sustainable Development Concepts” (1998)
- NRC Report on Corps Planning (1999)
- Policy Study: “Implementation Steps for SD (’02)

Context for Decisionmaking



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PLANNING
(Multiobjective River Corridor Management

Protection
(Regulatory Program)

- SAMPS
- ADIDS
- General Permits
- Nationwide Permits
- No Net Loss of Wetlands
- Wetlands Mitigation
- Banking

Development
(GI Program)

- Flood Damage Reduction
- Water Supply
- Navigation Channels, Dredging
- Reservoir Reallocation
- Ecosystem Management

Management
(O&M Program)

- Environmental Restoration
- Dredging Material Disposal
- Drought Contingency Planning
- Dam Safety
- Lock and Dam Rehabilitation
- Reservoir Systems Optimization

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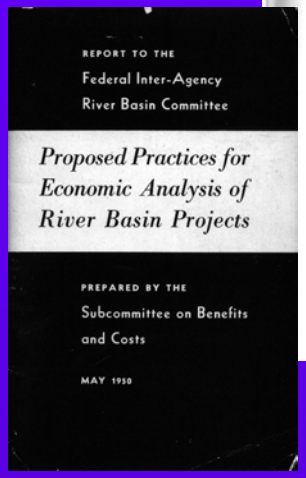
Existing Planning/Evaluation Paradigms

- **Descriptive** (NOAA/CZM, McHarg, GIS)
- **Indicative** (normative, P&S/P&G, BCA)
- **Prescriptive** (regulatory "planning")
- **Proscriptive** (to avoid, NEPA/EIS)
- **ERSATZ** ("Ecorestoration sitting around the table *Zeitgeist")* (see EPA Watershed guide)
- "**Garbage Can" Planning** (see Ersatz)



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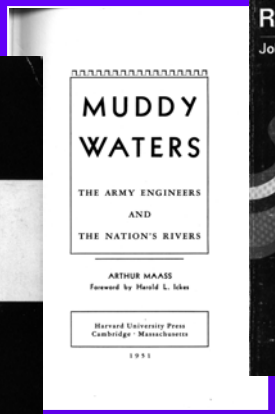

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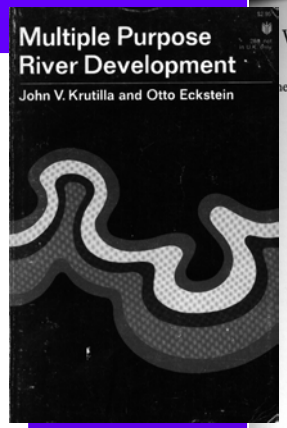

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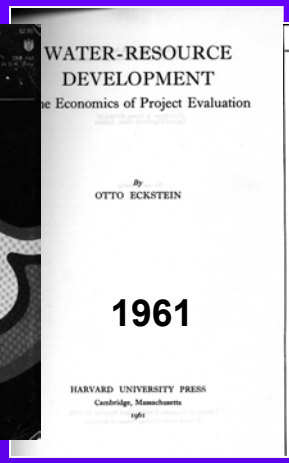

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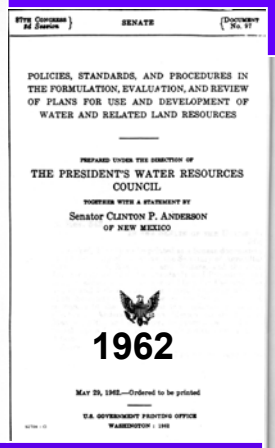

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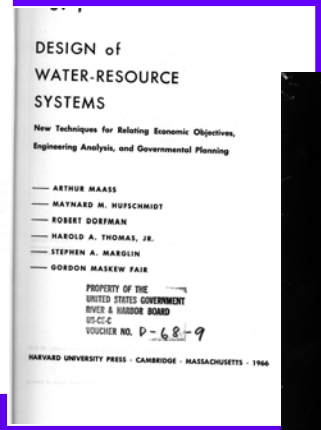

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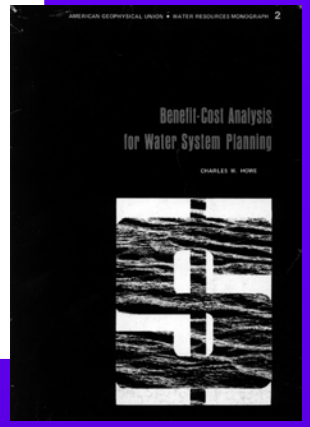
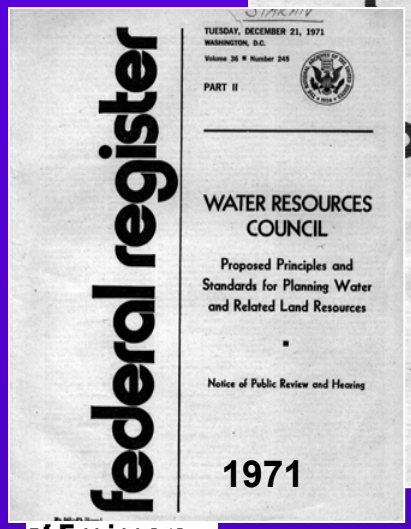
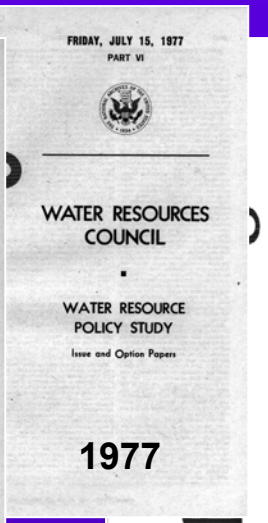


1971

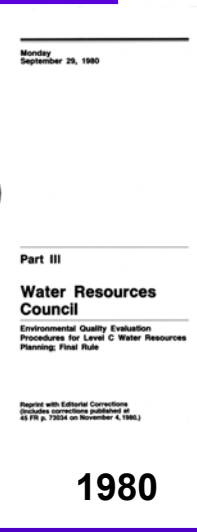
EVOLUTION OF FEDERAL WATER RESOURCES PLANNING GUIDELINES

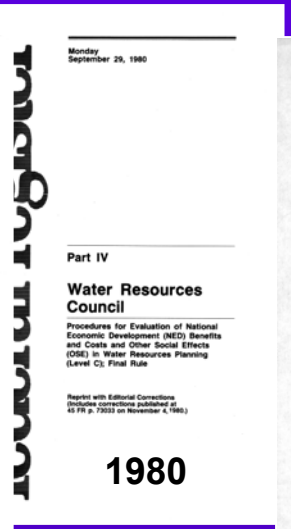


1971

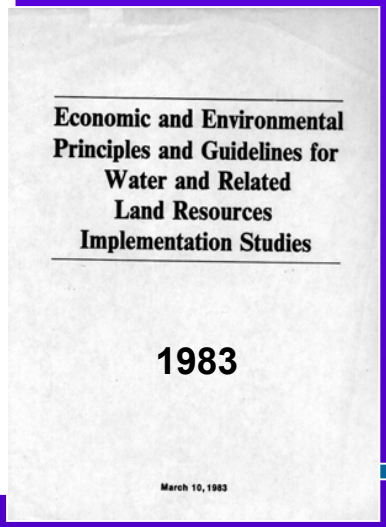


1977

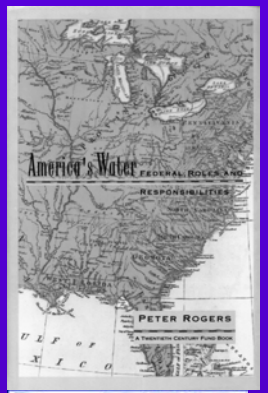




1980



1983



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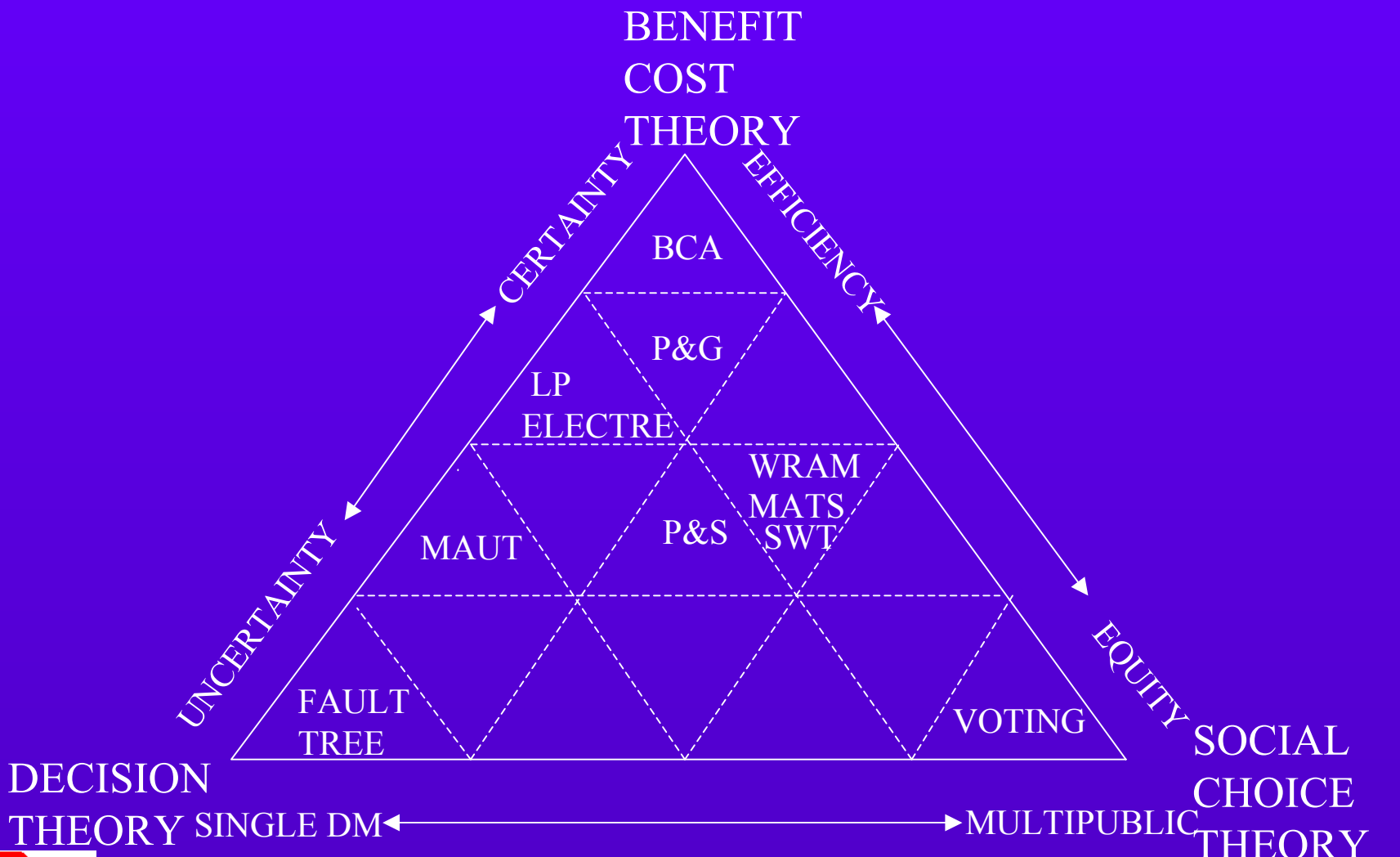
Normative Evaluation Philosophies



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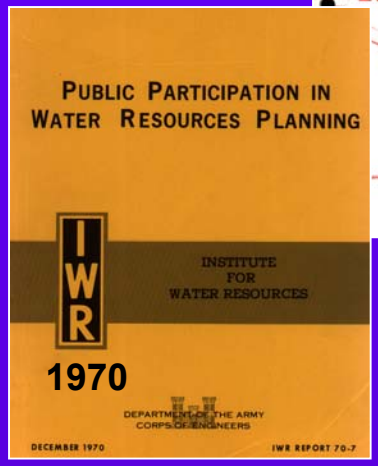
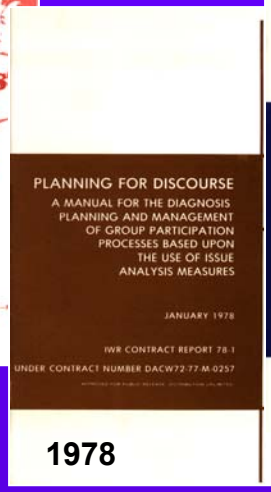


1970

1975



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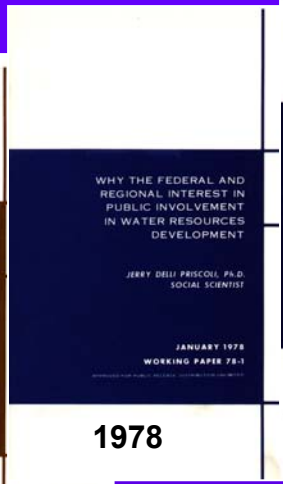
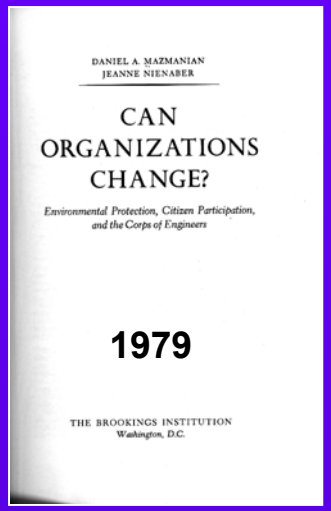


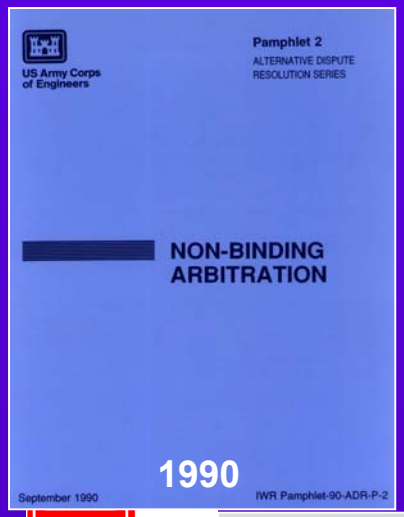
1978

1978

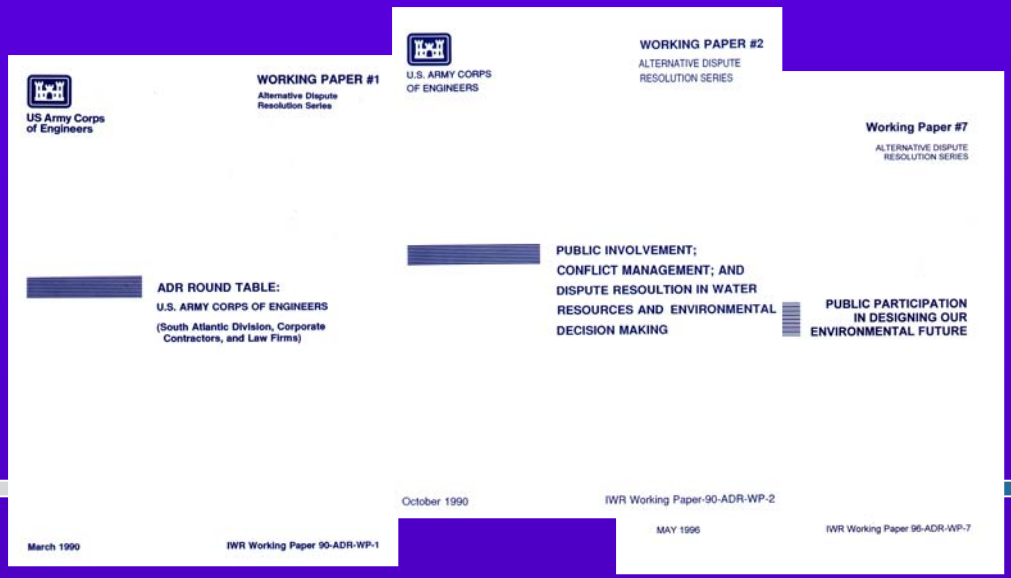


1979

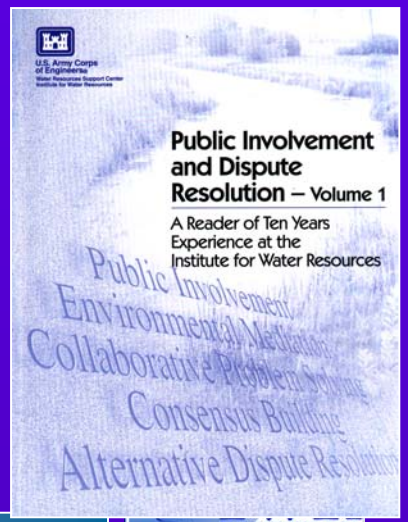
EVOLUTION OF PUBLIC PARTICIPATION/ADR IN THE CORPS' PLANNING PROCESS



1990



1996



1998

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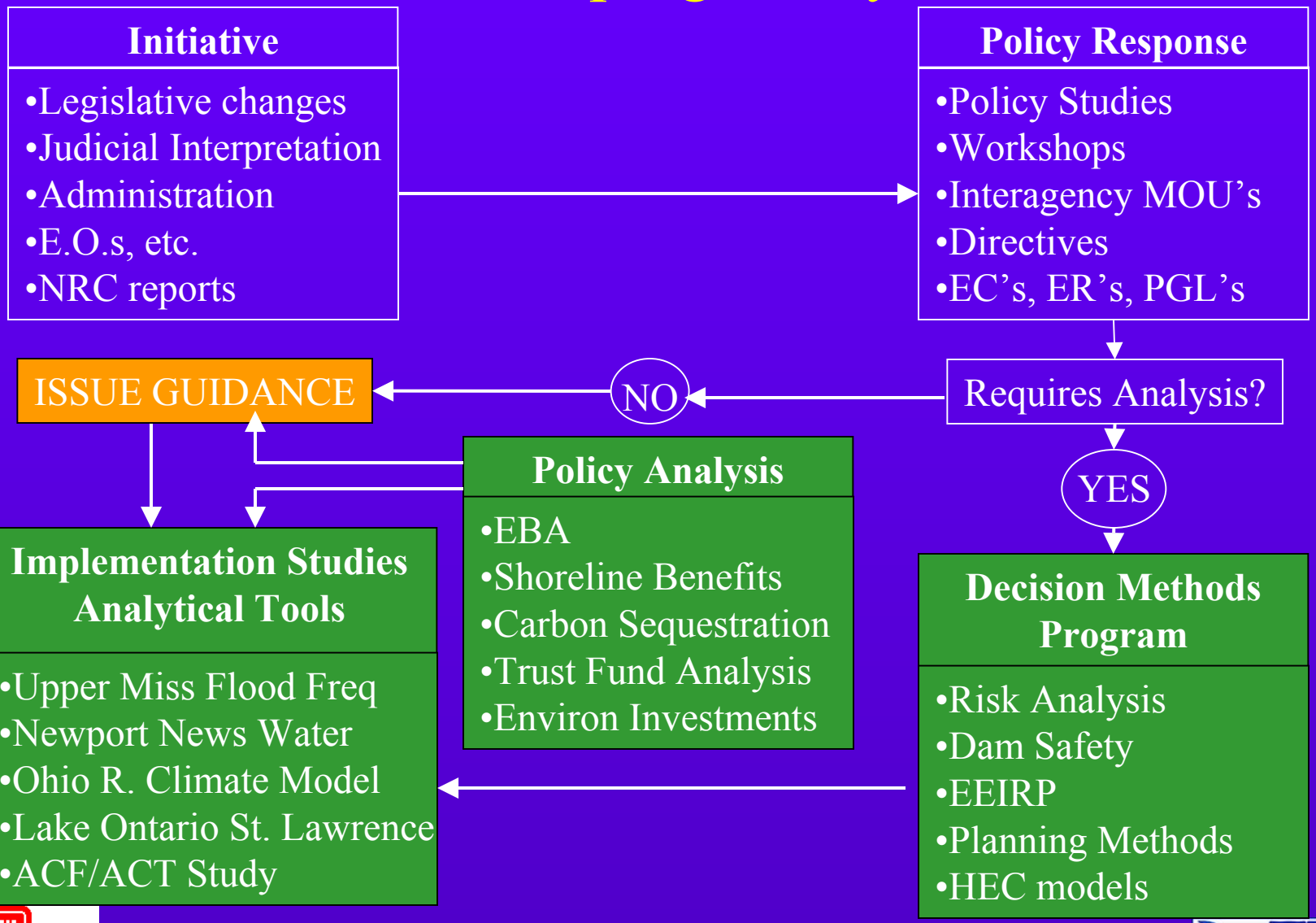
Process for Developing Analytical Methods



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IWR National Studies

- National Hydropower Study (1978-82)
- National Waterways Study (1979-83)
- National Drought Study (1991-95)
- Nat. Wetlands Mitigation Banking (93-96)
- Federal Infrastructure Strategy (93-96)
- Nat. Shoreline Study (2002-2007)

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National Drought Study
(1992-96)

- Report to Congress 1995
- National Drought Atlas (use L-moments)
- Shared Vision Planning applied to 5 areas
- IWR-MAIN water demand forecasting
- 20 technical reports
- Analysis of California Drought Impacts

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Multiobjective Planning/
Harvard Water Program
1962/P&S/P&G/ -
Updated IWR 1994

Adaptive Environmental
Management
C.S."Buz" Hollings
1978

Shared Vision Model
Richard N. Palmer 1981,
1992

The Shared Vision Model

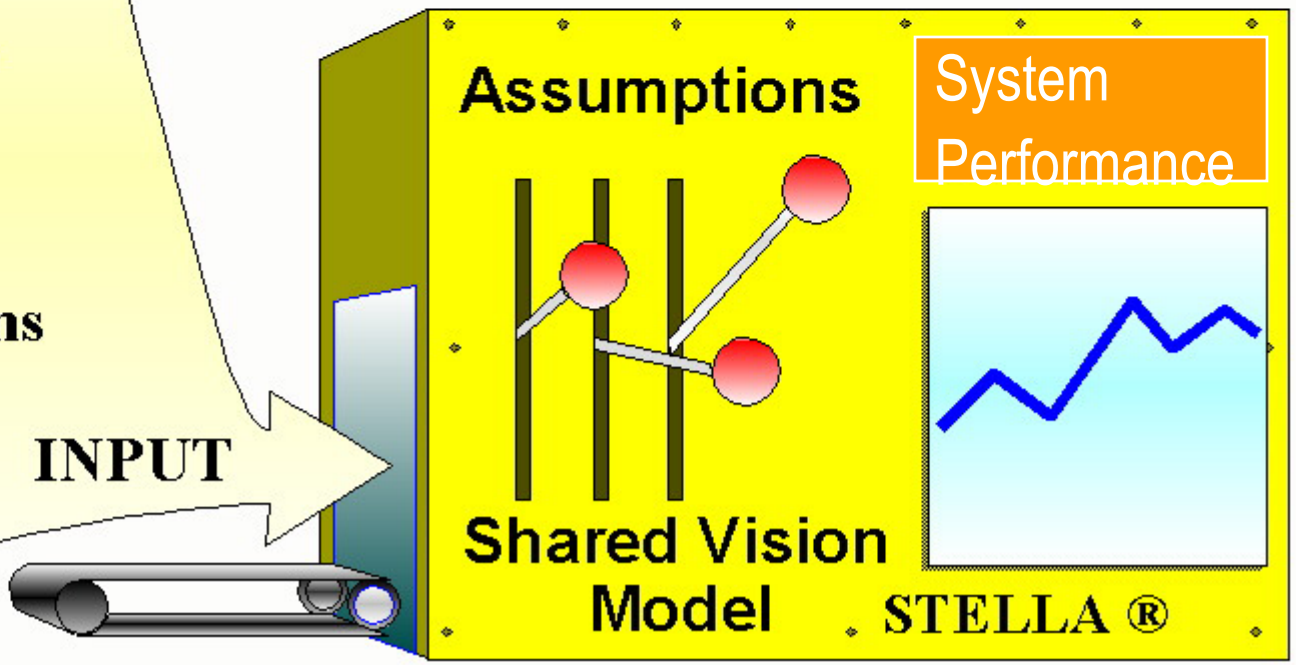
Stakeholder
Value Judgements

Demand Forecasts

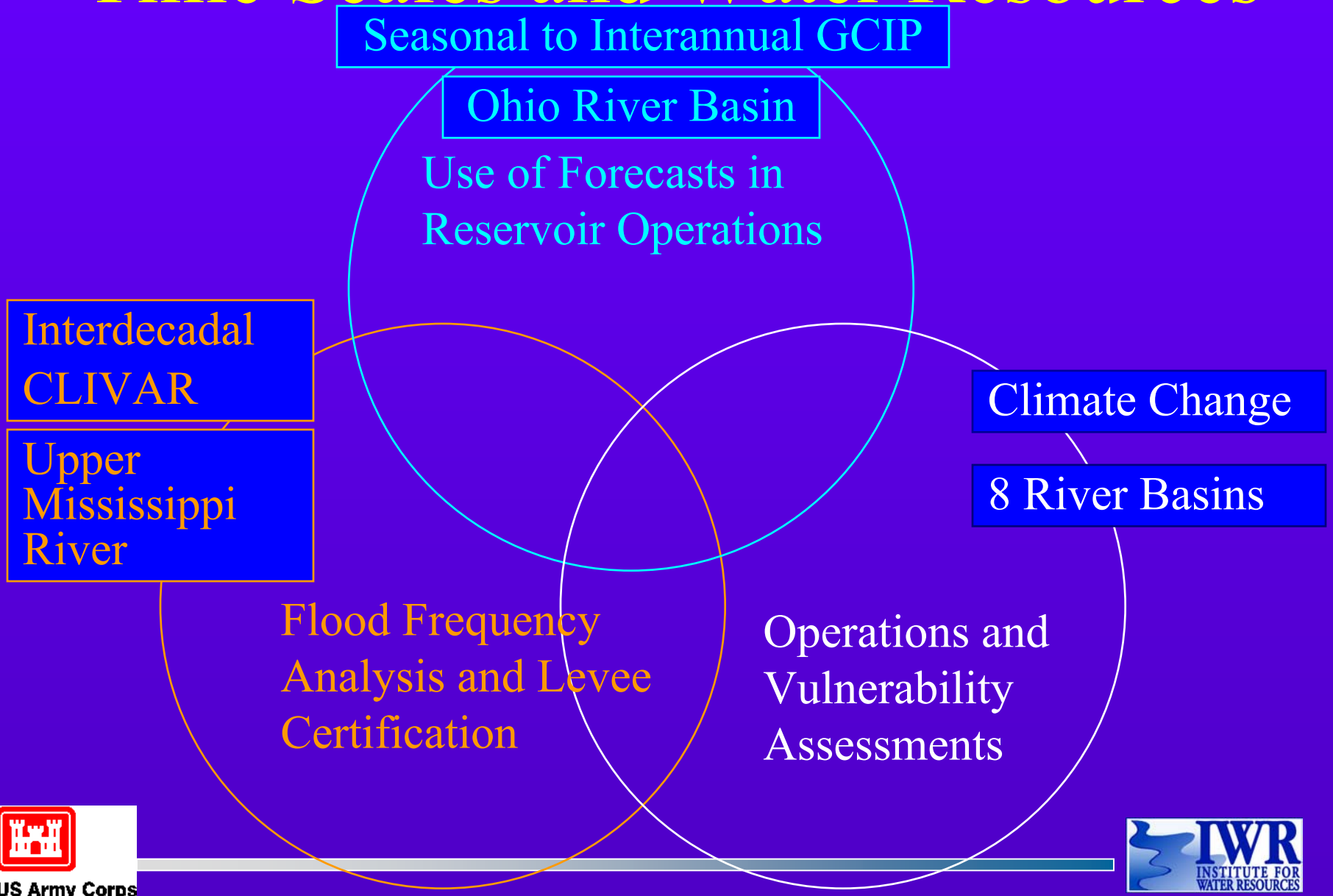
Hydrology

Economic Functions

Environmental
Functions



Time Scales and Water Resources



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Climate Change Analysis

- Intergov. Panel on Climate Change (I,II,III)
- National Climate Assessment (1998-2001)
- Climate Change Impacts on 8 river basins
- Upper Miss. R. Flood frequency Analysis
- Ohio R. Basin Climate Forecasting Model
- World Water Council Climate Forum

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Related Policy Analytics

- US Harbor Traffic Projections
- Corps Civil Works Capital Stock Update
- US Hydropower Capacity Potential
- US Harbor Maint. Trust Fund Analysis
- Envir. Investments Upper Miss Basin
- Emissions Impacts of Navigation

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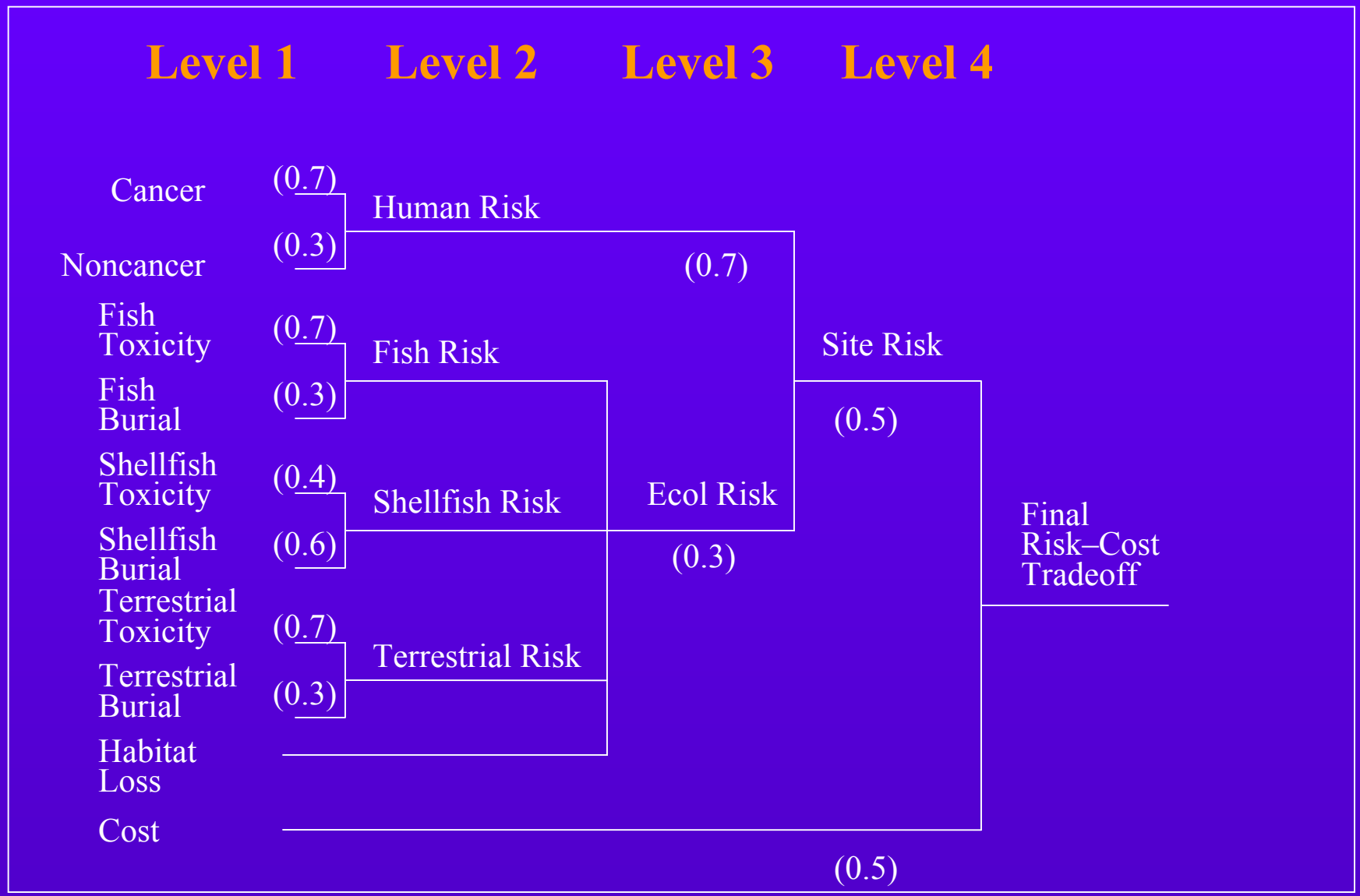

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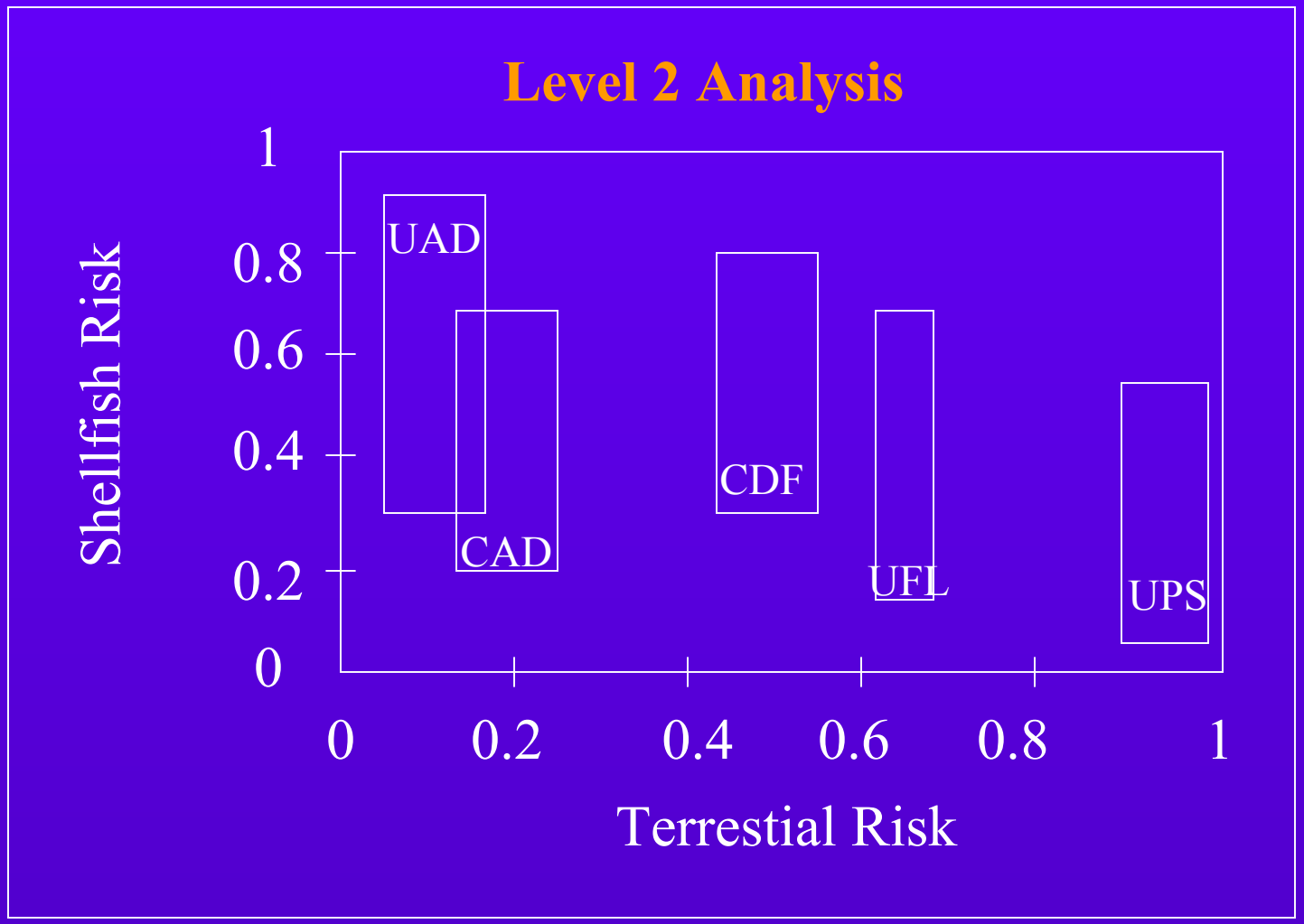
Level 2 Analysis



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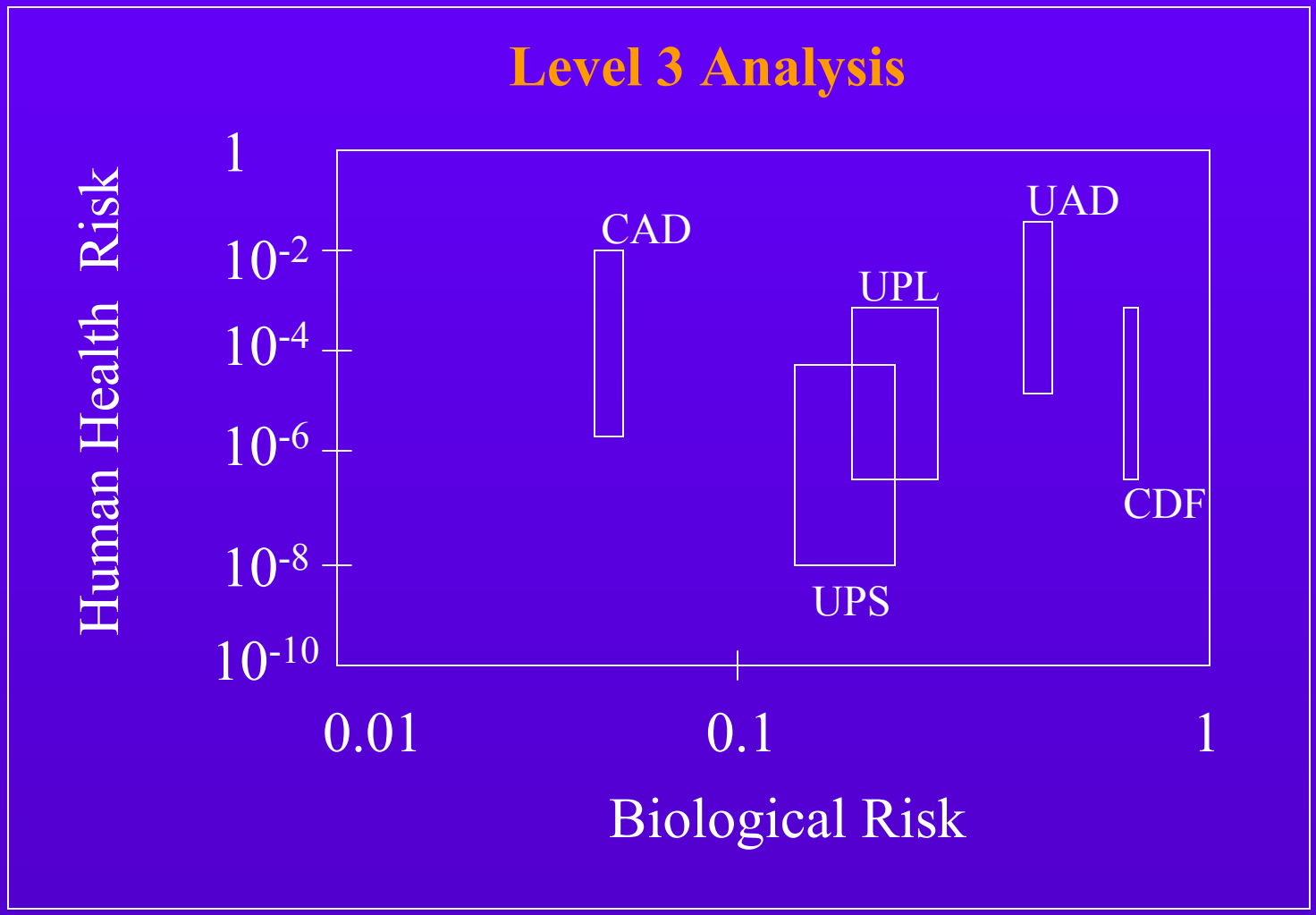
Level 3 Analysis



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Goal / Objective ⇒ Criteria	Sustainable Development				Reduce Vulnerability	
	Econ.	Envir.	Equity	SWB	Safety	Reliability
Mgmt. Measure	$ Costs & Benefit	W.Q. Habitat Diversity	Income Distribution	Relocate	Population at Risk	Frequency of Failure
MM_1						
…						
MM_i						
…						
MM_n						

Management ⇒ (Adaptive) Measures

- •Structural / infrastructure
- •Legal / legislative
- •Institutional / administrative
- •Regulations (land use, zoning, standards)
- •Education
- •Financial incentives, subsidies (+)
- •Taxes, tariffs, user fees (-)
- •Research and development
- •Market mechanisms
- •Technology development

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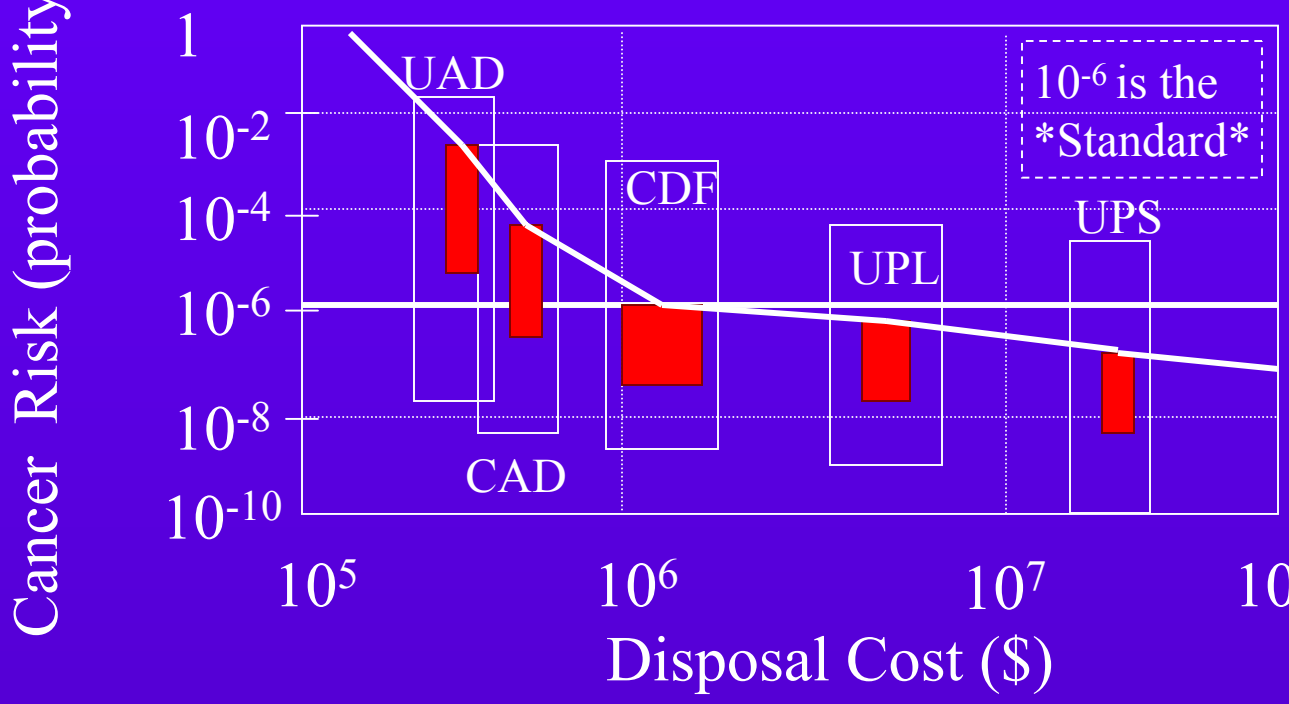
Level 4 Analysis



UAD – unconfined aquatic disposal
CAD – capped aquatic disposal
CDF – confined disposal facility
UPL – upland disposal
UPS – upland source

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